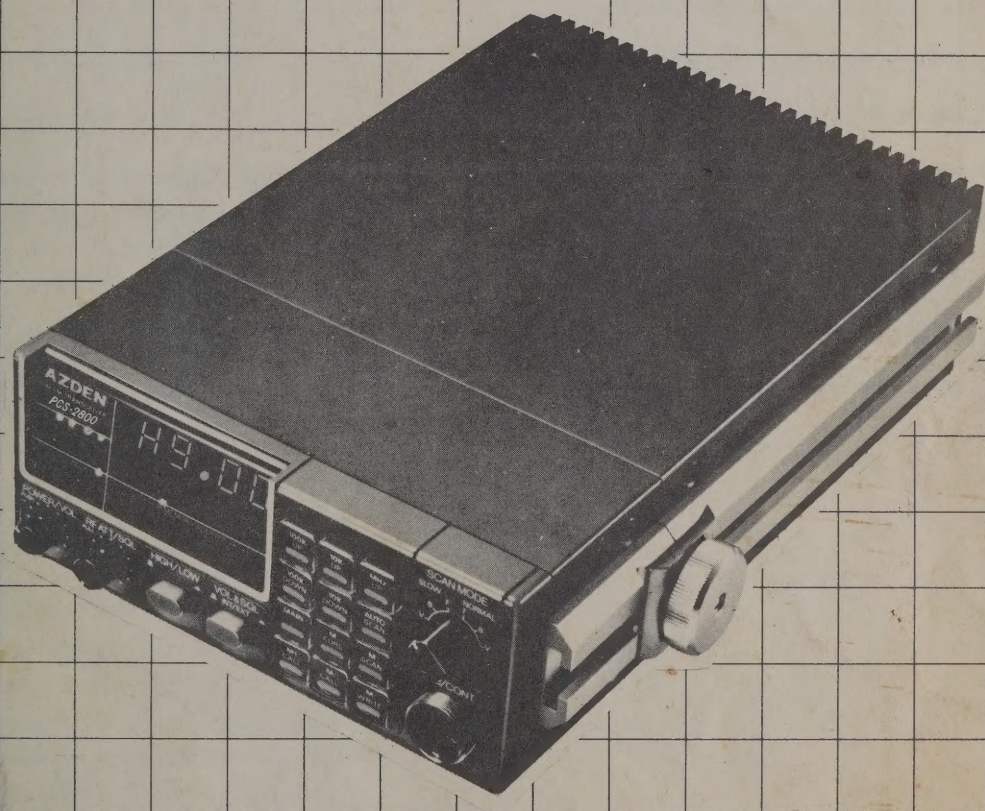


AZDEN®

28MHz

PCS-2800

INSTRUCTION MANUAL



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MAJOR FEATURES

★ Control unit is detachable from transceiver unit

This makes it possible to use the control unit on the dashboard for mobile operation, so that the unit may be manipulated more easily while driving. The main unit may then be removed to a more convenient place.

★ C-MOS microcomputer control

The built-in microcomputer makes scanning for Busy and Vacant channels possible. Channel operations are all computer-controlled. Once stored in memory, a frequency is retained even when power is turned off.

★ A microphone having six different functions is provided as a standard accessory.

An easy-to-handle, palm-control microphone works for six purposes i.e. VOL, SQ, MEMORY CH CALL, PTT, CH UP and CH DOWN. Since the microphone terminal is provided with six lines for the above signals, you can make a control box of your own design. (Refer to Page 18.)

★ Six memory channels

Up to six channels from among 170 channels can be stored, offering advantage for club use. Erasing and rewriting are easily performed.

★ All digital display

The Digital Display prevents reading errors. The S/Rf meter is also digital. LEDs indicate the memory channel being used. offset status.

CAUTIONS BEFORE USE

Before connecting to a power supply, check that the antenna is securely connected. Check the outside antenna circuit for short-circuiting using an ohmmeter. Ensure that it is not short-circuited, and then firmly screw it into the connector on the rear side of the unit. (See page 11)

★ Check that the cable used is of 50-ohm impedance

We recommend RG-58/U or RG-8/U or equivalent cable for the antenna circuit.

★ Rated voltage of the unit is 13.8V

Be careful not to connect the unit to an improper power source, as this may cause damage. For mobile use connect the power cable directly to the battery, being careful to observe the proper polarity.

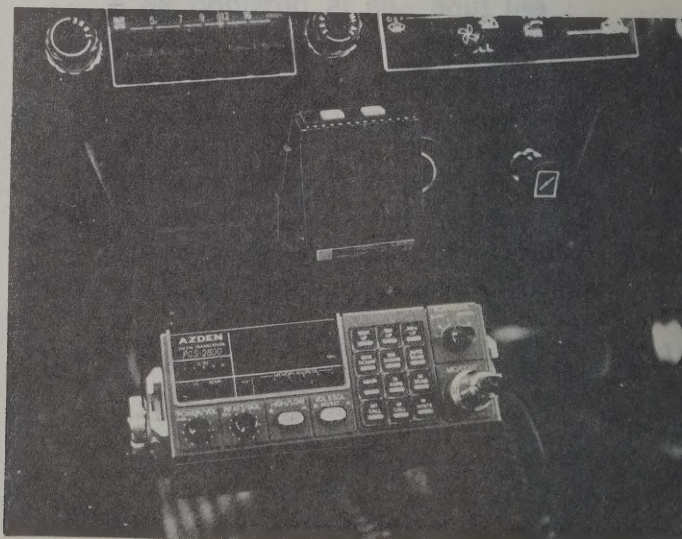
★ Check that power supply voltage is 12 to 14V and each lead wire is connected to correct polarity

The red lead is for positive + and the black lead for negative -, with maximum rating of $13.8V \pm 15\%$. The unit is designed for negative ground circuits only.

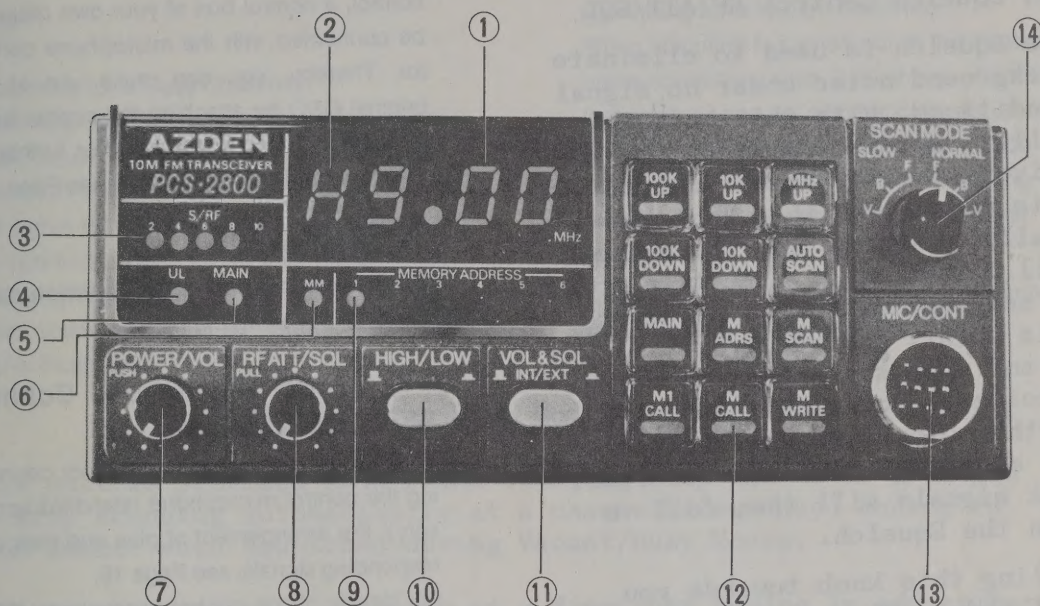
★ Be sure the unit is properly located

When using this transceiver as a fixed station, it should not be located in a place directly exposed to sunlight or with excessively high humidity.

When using this unit as a mobile station, avoid locating it where it comes in direct contact with the air flow from the vehicle heater. If a vehicle is parked for a long period under the hot sun, the inside temperature becomes very high. Do not start transmitting until the temperature lowers. Since this unit is to be grounded with the negative terminal, it must not be used in a vehicle that is grounded with the positive terminal without taking proper measures for insulation.



NAMES OF COMPONENT PARTS, OPERATION AND USE



(1) Frequency Indicator

This indicator displays the lower four digits of the transmitting or receiving frequency on large LEDs. The example shows H900 which are the lower 3 digits of 29.00 MHz

(2) Power Indicator (H/L)

This indicator displays H or L only when transmitting. LOW transmit power is indicated by H and 1W by L.

(3) Signal Indicator S/RF

This indicator displays the input signal strength during reception and relative output power during transmission using five LEDs. The indicating level will be affected by the SWR of the antenna system. Therefore, 10 watts output does not necessarily mean that all five LEDs must be illuminated.

(4) Unlock Indicator ~~S/RF~~

This indicator will light up when the PLL circuit malfunctions or the unlock condition of the PLL.

Usually, a period of 20-30 milli-seconds is required to get the PLL circuit locked in. Due to this, the indicator may light up momentarily just after power is turned "ON" or when a channel is changed. This does not mean that the PLL circuit is in an abnormal condition.

(5) MAIN

This indicator will light up when MAIN key (12) on the keyboard is pressed and the Frequency Indicator (1) displays the lower three digits 9.00 of 29.00MHz. For further details, see the section entitled "Details of Keyboard".

(6) Memory Mode Indicator

This serves to indicate that the unit is operating under Memory Mode (with M CALL, M1 CALL or M SCAN key depressed). For further details, see the section entitled "Details of Keyboard."

(7) Power Switch/Volume Control

Pushing this switch will turn the power ON and OFF. Rotating it clockwise with the power switch in the ON position will turn up the volume.

(8) Squelch Control RF ATT/SQL

The Squelch is used to eliminate background noise under no signal conditions. With this knob turned fully counter-clockwise, the receiver hiss may be offensive. In this case, turn this knob gradually clockwise and the noise will disappear at a certain point. By setting the knob just beyond this point, the receiver will be silent unless a signal is being received. Rotating the knob further clockwise will reduce the sensitivity of the receiver. Weak signals will then fail to open the Squelch.

Pulling this knob towards you will reduce RF amplifier gain by 1/3(-10dB) to minimize cross modulation, etc.

(9) Memory Address Indicator

This unit has six memory channels. The memory address indicator shows which channel is being used in the Memory Mode. For further details, refer to "Details of Keyboard."

(10) Transmit Power Change-over Switch

Pushing this switch will change transmitting power LOW-HIGH or 1W-LOW. This will be indicated H or L by the Power Indicator (2)

(11) Volume & Squelch Internal/External Select Switch VOL & SQL ■ INT/EXT ■

With this switch, volume and squelch control can be made by either the incorporated control knobs (7) and (8) or the external control microphone PCM-2000 (standard accessory). When this switch is in the "UP" position (■), volume and squelch control can only be

made by the incorporated knobs ⁽⁷⁾~~(6)~~ and ⁽⁸⁾~~(7)~~. When this switch is pushed into the "DOWN" position (■), volume and squelch control is made by the external microphone. When this switch is in the "DOWN" position for external control, a control box of your own make can be connected with the microphone connector. Thereby, you can make use of your original QSO by attaching the control box to the gearshift for mobile use. For further details of control box connection, see Page 18.

(12) Keyboard

This is used to select each operation mode. For details see Page 7.

(13) Control Microphone Connector MIC/CONT

This is a 12-pin connector used for connecting the control microphone (standard accessory). For arrangement of pins and their corresponding signals, see Page 18.

For details of the control microphone PCM-2000, refer to Page 13

(14) Offset/Scan Select Switch (US Version)

This switch has six positions. With the switch in any of the three positions on the right side, the transceiver will be operating normally. With the switch in any of the three positions on the left side, the transceiver will be operating with an accessory offset determined by a crystal. (The PCS-2800 is supplied with a crystal providing -100 KHz offset.)

(Free):

Scanning is carried out over every channel independently of input signal and squelch control until a stop command key is pressed. For function of the stop command key, see page 7.

(Scanning for a Busy Channel):

When scanning is carried out in this position under squelching state, it automatically stops at a channel receiving an input signal. When the signal disappears, scanning is resumed. To conduct a QSO in the channel at which scanning stops, push a stop command key. Then, scanning will not be resumed when the signal disappears.

Note: Under no squelching state (with the SQL knob rotated fully counter-clockwise), scanning does not occur regardless of channel status.

(Scanning for a Vacant Channel):

When scanning is carried out in this position under squelching state, it skips over channels that are busy and will automatically stop at the first vacant channel encountered. Once a signal enters a vacant channel, scanning is resumed until the next vacant channel is encountered.

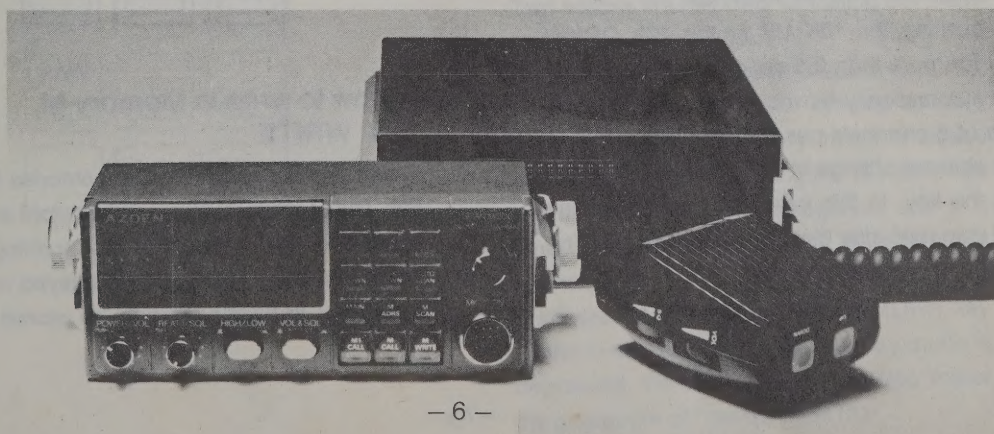
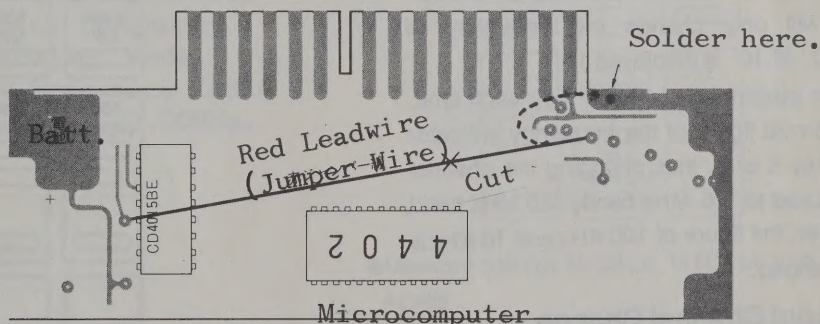
Note: Under no squelching state, scanning will occur regardless of channel status.

10KHz Scanning Step Modification

This unit is provided with 10KHz scanning step and is so arranged to stop scanning automatically at a channel (frequency) ending in even number when squelched during Vacant/Busy Modes.

When you want to stop scanning at a frequency ending in odd number as well, it is necessary for an owner to do the following simple modifications:

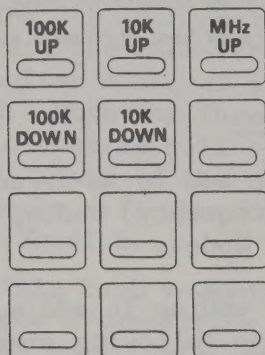
1. Remove cover (C) as illustrated at page 17.
2. Cut the red jumper wire on the control board unit and solder one end of the wire to the printed earth pattern as shown below. Cover the other end of the wire with a vinyl tape.



DETAILS OF KEYBOARD

★Channel changing (UP-DOWN MODE) – Frequency change

●When pushing the 10K UP key or the 10K DOWN key once, the operating frequency is moved up or down by 10 KHz. That is: pushing it 15 times will change the operating frequency up or down by 150 KHz. However, this cannot change the frequency in MHz figures.



●When pushing the 100K UP key or the 100K DOWN key once, the operating frequency is moved up or down by 100 KHz. However, this key will not effect the upper MHz figure.

Example: Pushing the 100K UP key three times while the unit is operating at 28.80 MHz will only change the frequency to 28.10 (8.10 is displayed.)

●When pushing the MHz UP key each time, the topmost figure of the frequency indicator becomes 8 or 9, thus changing the channel being used to 28 MHz band, 29 MHz band. However, the figure of 100 KHz and 10 KHz is not changed.

★Rapid Channel Change

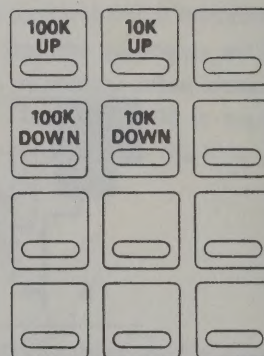
By pushing the 10K UP or the 10K DOWN key for more than 0.5 second, the frequency will automatically be moved up or down at a rate of 8 channels per second. you can stop the channel change at any channel by releasing the key. In this case, the Rapid Change will stop right after the key is released. Shifting to 100 KHz is also possible.

★How to stop scanning (Stop & Return Key)

The 10K UP, 10K DOWN, 100K UP and 100K DOWN Keys are provided with the following functions : Autoscanning, Memory scanning stop, Return from Memory mode.

When scanning is carried out in a specified mode, it will be stopped by pushing one of the above four keys. For example, when you have searched for the channel of a person with whom you want to communicate, with SCAN knob set at B (Busy) position, push one of those four keys, e.g. 100K UP key, and scanning alone stops at this channel. In this case, the original function of this key "100 KHz increase" is not performed. However, pushing this key once more will accomplish "100 KHz increase".

When you push another function key, e.g. M1CALL (used to call the content of M1 memory, such as 28.50 MHz) during scanning, scanning stops immediately and the frequency indicator displays the content of M1, e.g. 8.50 . Thus, you are ready to communicate using this channel.



★How to write in Memory M M WRITE

This unit is provided with six memories M1 to M6. The M WRITE key is used to store an optional channel (frequency). By pushing this key the upper three figures displayed on the frequency indicator (1) can be stored in a

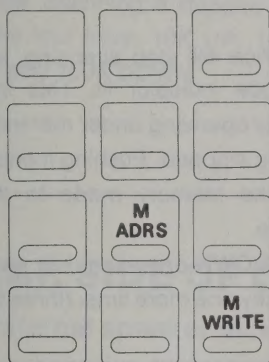
memory address which is displayed on the memory address indicator. The memory address is changed in sequence by pushing the M ADRS key.

Example: To store 28.56 MHz in M3.

First, display 8.56 on the frequency indicator in accordance with procedure for "Frequency change" as above mentioned. Secondly, light up M3 on the memory address indicator by means of the M ADRS key.

Then, depress M WRITE key.

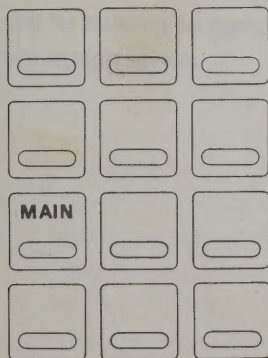
As a result, 28.560 MHz is stored in M3, with an indication of 8.56 .



★ Call function

● MAIN

Pushing this key will return to 29.00MHz for immediate operation independently of any frequency being used or operation mode. In this case, the Frequency Indicator displays 9.00 of 29.00MHz.

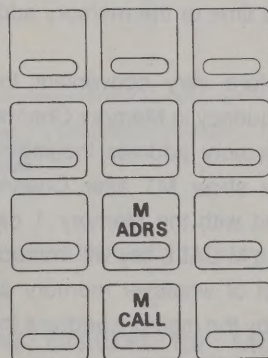


Return to your operating frequency from 29.00MHz
(See how to stop scanning)

Push one of the four keys, 1OKUP, 1OKDOWN, 1OOKUP and or 1OOKDOWN when you move back to your predetermined operating frequency after pressing the MAIN key and calling a station to communicate with at 29.00MHz.

●Memory call (A) M ADRS and M CALL

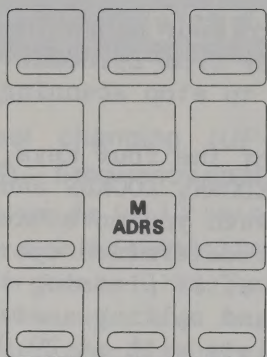
The M ADRS (MEMORY ADDRESS) key is used to select one optional memory from among the six memories stored. Pushing this key each time will advance the memory addresses 1 to 6 one at a time, lighting up a memory address indicator LED corresponding to the address. Then, by pushing the M CALL (MEMORY CALL) key the content (channel) stored in the memory is called and displayed on the frequency indicator (1).



●Memory call (B) M CALL, M1CALL and M ADRS

Two actions are required for calling the memory in the above procedure "memory call (A)". However, once the M CALL or M1CALL key is depressed, that is, "memory call (A)" is performed (the memory mode indicator MM is lighting up.), pushing the M ADRS key will advance the memory address one at a time, with an indication of the content of the memory.

Such state continues until the RETURN key (Refer to next item.) from the memory mode is depressed. Of course, you may also follow the procedure of "memory call (A)".



★ Return from memory mode (see "how to stop scanning")

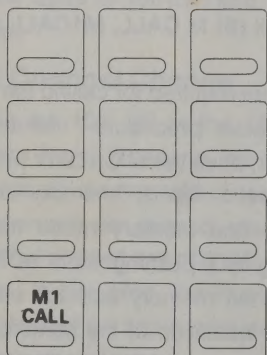
To return the memory mode to the UP-DOWN mode, push one of the four keys 10K UP, 10K DOWN, 100K UP or 100K DOWN.

After the key is depressed twice, the channel can be changed by the UP-DOWN operation.

★ Quick memory 1 call

By pushing this key, the content of Memory Channel 1 can be called and indicated at once, independently of the frequency being used at the time or the memory address and scanning.

It is therefore very convenient to store a priority frequency in Memory Channel 1. Note that the memory address indicator may not necessarily show M1 after Channel 1 has been called with the Memory 1 call button. Pushing the M CALL key will immediately call the content of whatever memory address is displayed by the memory address indicator.



★ Memory scanning M SCAN (MEMORY SCAN)

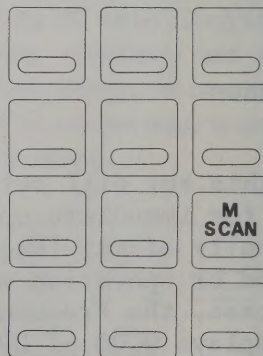
Pushing this key will start scanning of the memory address. In this case, scanning starts directly after the address which is displayed on the memory address indicator.

For example, when M2 is lit, scanning is carried out from M3, M4, M5, M6, M1, M2 and M3 in the sequence under a specified mode until the SCAN Stop key (See "How to stop scanning".) is pushed.

To stop scanning, push one of the four keys; 10K UP, 10K DOWN, 100K UP and 100K DOWN.

Pushing it once will stop scanning, with the memory mode indicator lit. This indicates that the unit is operating under memory mode with scanning stopped. Pushing it once again will return the memory mode to the UP-DOWN mode.

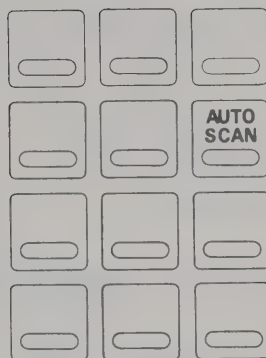
To start UP-DOWN operation, it is necessary to push the key one more time. (three times).



★ Automatic scanning AUTO SCAN

When this key is pushed while the unit is operating in the UP-DOWN mode, scanning is started from the frequency indicated at that time in the specified scanning mode (F, B or V). When the unit is operating in the memory mode, pushing this key will cause the unit to return from this mode and then start scanning from the returned frequency in the specified scanning mode. In either case, step width is 10 KHz UP and scanning width is 000 to 990. Therefore, the figures are not shifted in the MHz range. Scanning is stopped by pushing one of the four keys; 10K UP, 10K DOWN, 100K UP and 100K DOWN.

The UP-DOWN operation can be started immediately after the scanning has been stopped.



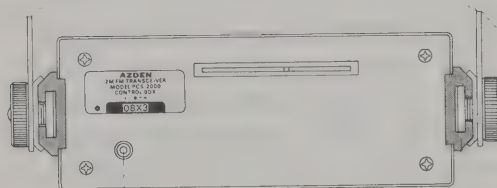
★ REAR SIDE OF CONTROL UNIT

(15) External speaker jack

An external speaker to be located in any desired position (option, 3.5φ with plug) can be connected with this jack. This speaker is activated by setting the speaker output select switch located at the rear of the main unit to the EXT position.

This feature is especially convenient when the main unit is located in an "out-of-the-way" or remote place.

When separating the control unit from the main unit, a remote control cable (option) must be used.



(16) Connecting board

This part connects with the Control Connector of the main unit for passing on operation and transmission/reception signals.

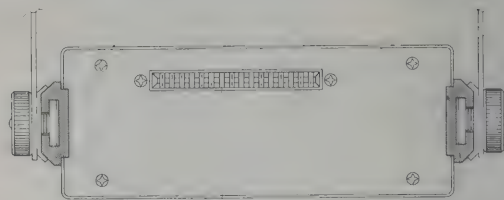
(17) Hanging Bracket for Mobile Unit

★ FRONT SIDE OF MAIN UNIT (TRANSCIEVER)

(18) Control connector

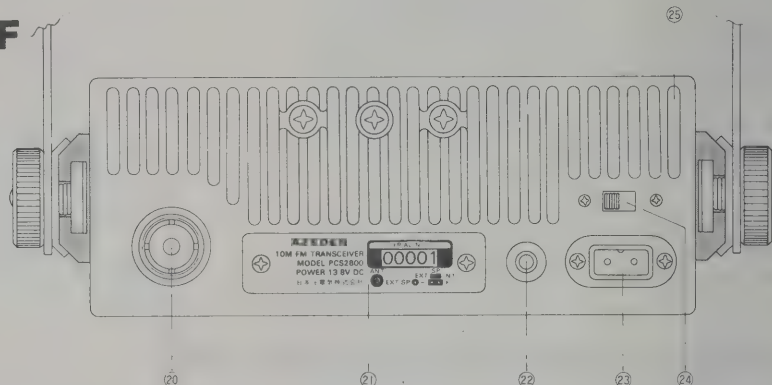
This part connects with the Connecting Board of the Control Unit.

When separating the control unit from the main unit, a remote cable (option) must be used.



(19) Hanging Bracket for mobile use.

★ REAR SIDE OF MAIN UNIT



(20) Antenna connector

It is an M type connector for 50Ω used to connect the antenna. So, the impedance of antenna and cable used should be 50Ω. Difference in these impedances will lead to mismatching, increasing the loss of power that can be fed to the antenna. Too long a cable will also increase the loss of power. As nearly as possible, select a length that will most optimize impedance matching, using a cable of a length of $\lambda/2 \times 0.67$ multiplied by integral.

(21) Nameplate (connecting board)

(22) External speaker jack

An external speaker (option, 3.5φ with plug) is connected with this jack. In this case, set the speaker output select switch to INT position.

If it is set to EXT position, speaker output is supplied to the speaker jack (15) on the rear side of the control unit.

By inserting the speaker cable plug into this jack with the select switch set to INT, the internal speaker is automatically separated.

(23) Power connector

It is connected with the attached power cord.

Connect power supply of $13.8V \pm 15\%$, 3A or more. The red lead of the power cord is positive + and the black is negative - (grounding).

When connecting the power cord to the power supply, be careful not to mistake the polarity.

Should it be connected to incorrect polarity, a fuse (5A) is blown to protect the main unit. Never use a fuse other than specified one.

(24) Speaker output select switch (See (15) and (22).)

When an external speaker is used without operating the internal speaker, insert the speaker cable plug into the speaker jack (15) on the rear of the control unit and then set this switch to EXT position.

When changing to the internal speaker by inserting the external speaker cable plug into the main unit, set this switch to INT position. When it is set to EXT position, power for sound output is supplied to the external speaker jack alone.

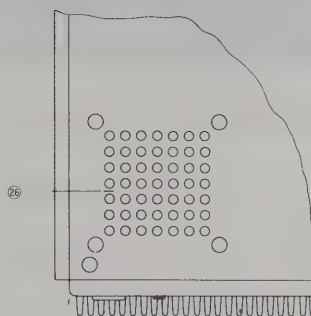
(25) Heat Sink

The heat sink is made of die-cast aluminum for sufficient capacity for prolonged transmission at 10W output.

★ BOTTOM OF MAIN UNIT

(26) Internal Speaker

Since the sound holes face downward, the main unit should be located so as not to block these holes. The speaker is 8 ohms impedance.

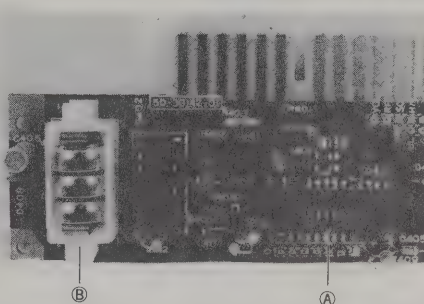


★ BACKUP OF MICROCOMPUTER MEMORY

A C-MOS microcomputer (A) is employed in this unit. To take advantage of the power-saving characteristics of C-MOS, this unit is provided with silver-oxide cells (B). These serve to back up the memory stored by the user. Suitable types are **S76, MS76, RS76 or 76SO**. These cells are supplied separately and are not installed prior to dispatch.

By use of these cells, the memory, which has been stored before turning off the power or removing the power supply, is retained and can be recalled when the power is returned.

If the cells are used over their service life (approximately six months) or the power cord is loose, memory will not be retained. This condition is indicated by partly broken figures or false figures in the display. First, check that the power cord is securely connected with the power supply. If so, you should replace the old cells with three new silver-oxide cells available at camera or electric goods stores. The transceiver can be used without cells for powering the memory. But the existing memory will be erased in this case when the power is turned off, and the memory contents must be rewritten when using the unit the next time.



The unit can be used with an entirely consumed memory back-up battery, but there is some danger that the battery fluid will leak. Therefore, spent cells should be removed or replaced.

MICROPHONE PCM-2000 (STANDARD ACCESSORY)

A multifunctional microphone PCM-2000 is provided as a standard accessory.

Your own radio microphone can be used for this transceiver using an optional microphone connector or a control box of your own design. (See Page 18)

Function of each part

(1) M1 memory call key M1 CALL

It has the same function as of the M1 CALL key of the control unit. (Refer to "Details of Keyboard")

This key arrangement will be a positive help for "Safe Driving" as you can drive a car without taking your eyes off the road.

(2) PTT switch lever (PUSH TO TALK)

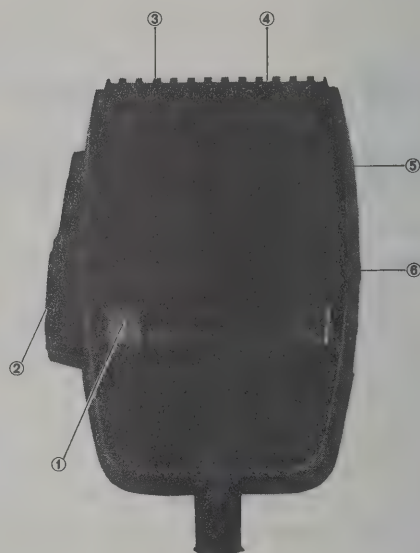
Pushing this lever puts the unit in the transmission mode. You can transmit a message, using the frequency (channel) displayed on the frequency indicator of the control unit. Speak at a proper loudness while bringing the microphone near your mouth.

By releasing the lever the unit will automatically return to the receiving mode.

(3) 10K UP key & (4) 10K DOWN key

These keys have the same function as of the 10K UP key and the 10K DOWN key of the control unit. (Refer to "Details of Keyboard".)

Using these keys, Channel Change, Scanning Stop and Fast Forward are easily performed by "palm control."



(5) Volume VOL

Only when the VOL & SQL $\blacksquare$ INT/EXT $\blacksquare$ switch is set to EXT ($\blacksquare$) position, can the speaker sound volume be controlled by the rotary knob on the microphone.

(6) Squelch SQ

Only when the VOL & SQL $\blacksquare$ INT/EXT $\blacksquare$ switch is set to EXT ($\blacksquare$) position, can squelch control be made by this rotary knob.

OPERATION

● Reception

● Before activating the unit with the power switch, set the knobs and switches of the control unit as follows, and check that the antenna is connected correctly:

VOL	Turned fully counter-clockwise
SQL	Turned fully counter-clockwise
VOL/SQL	Internal/external to internal ("UP position")
SCAN MODE	NORMAL F

● Firmly plug the microphone connector into the microphone jack on the unit.

● Set the speaker output select on the rear side of the main unit to INT position.

● Turn on the power switch. With no power connected to the radio, it is impossible to tell whether the power switch is on or off; however, the power connector may be attached

without harm to the unit if the power switch is on.

● If the LED readout seems to malfunction, turn off the power switch and after several seconds, turn it on again.

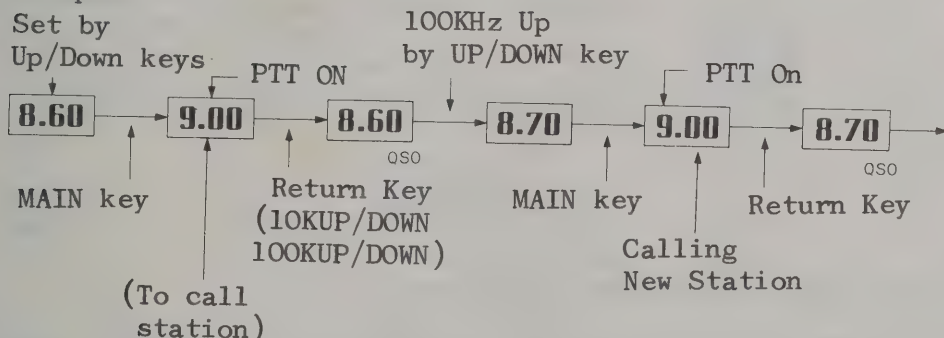
● Lighting up the LEDs indicates power is on. Turn the volume control knob clockwise until noise comes from the speaker. Then set the volume at the desired level.

● At this point, the unit is ready for reception at a frequency displayed on the frequency indicator.

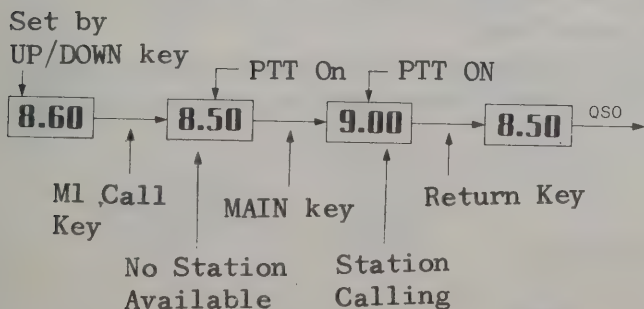
● When no signal is being received, the noise from the speaker may be offensive. Turn the squelch knob slowly clockwise until the noise disappears. Then set it slightly beyond this point. In mobile applications, the squelch control sometimes becomes unstable, and it may become necessary to readjust it.

● Transmission/Reception & Station Calling - How to use MAIN key

Example 1:



Example 2: Suppose the content of Memory M1 is 8.50, your desired operating frequency (See Memory scanning at page 10)



Suppose that your pre-determined operating frequency is 28.80MHz.

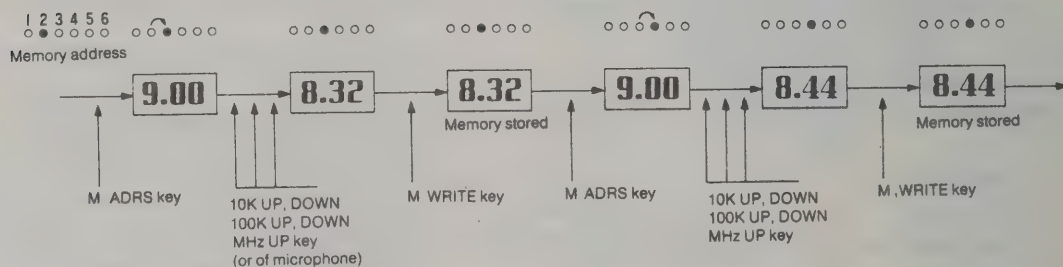
Press the MAIN key and call a station at 29.00MHz. Then, pushing one of the above four keys enables you to return to 8.80(28.80MHz) for immediate QSO.

●How to write in memory.

Example: To write in memory as follows.

M1 = 8.50 M2 = 8.22 M3 = 8.32 M4 = 8.44 M5 = 8.56 M6 = 8.66

- Assume that 9.00 is stored in all memories.
- Push M ADRS key. (It may be pushed independently of operating mode. However all key operations automatically stop when in transmission mode.)
- Pushing M ADRS key will advance memory address lit on memory address indicator by one position.
- Assuming that memory address moved to 3. Push one of MHz UP, 100K UP, 100K DOWN, 10K UP and 10K DOWN keys to display 8.32 .
- Push M WRITE. Thus, 28.32 MHz has been written in memory No. 3.
- Push M ADRS to advance memory address by one position.
- Push UP key or DOWN key at need to display 8.44 .
- Push M WRITE key. Thus, 8.44 has been written in memory No. 4.
- Write in M5, M6, M1 and M2 in the same procedures as above mentioned.



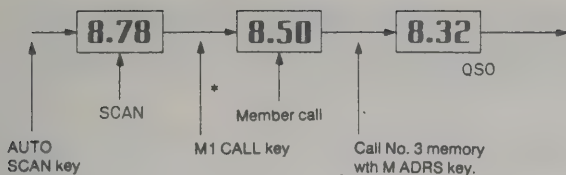
●How to use M1 CALL, M ADRS and M CALL keys

Push M1CALL key while operating the unit, and you can immediately call the content of M1 independently of reception mode presently being used.

Example 1: Assuming that 8.50 is stored in M1 and 8.32 in M3.

Call them in the procedures illustrated below.

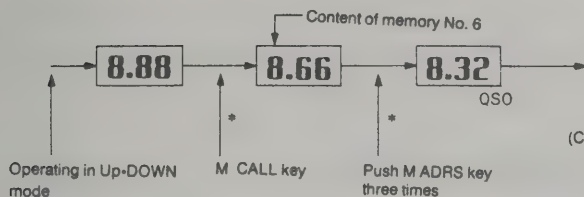
Also, these memories can be alternately called by manipulating M1 CALL key and M CALL key only in one-touch control, when M3 is lit in advance by means of M ADRS key.



(Caution)* In this case, memory address indicator does not change indication.

Example 2: Call M3 from among ordinary channels.

Assuming that 8.660 is displayed and memory address indicator lights up memory No. 6.

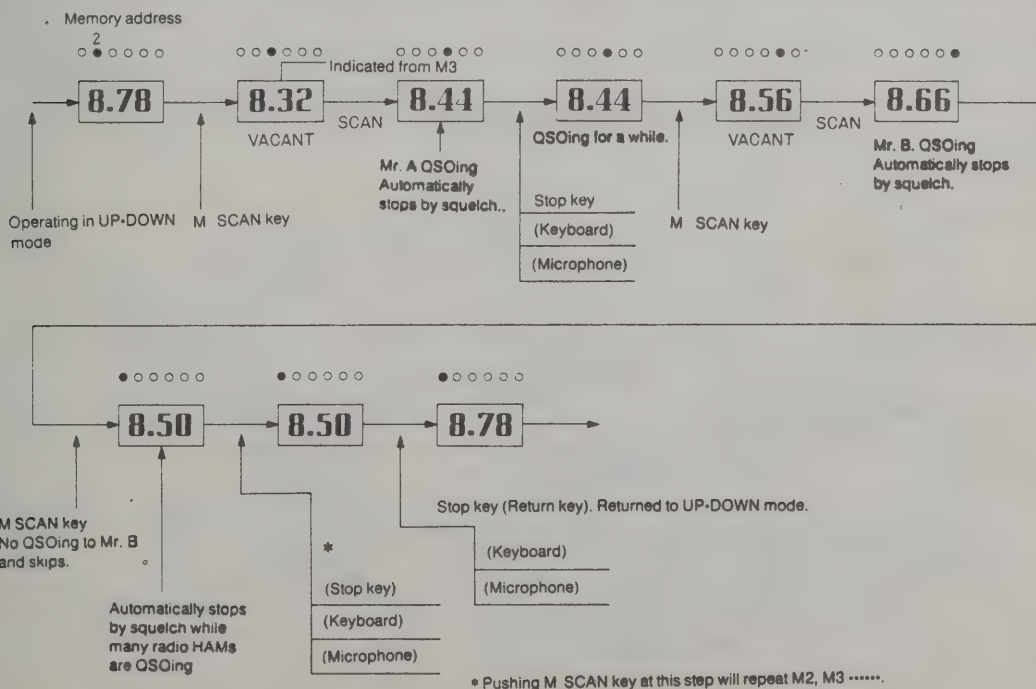


(Caution) Any of * operation may be done first.

●How to use M SCAN key

Example

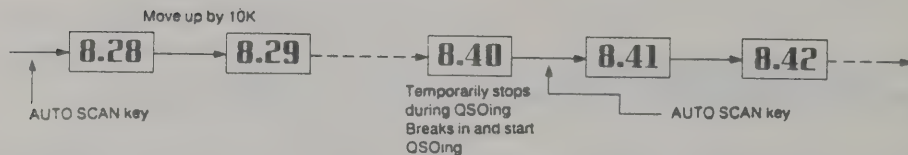
- Rotate SQL knob clockwise to set at squelching state.
- Set SCAN knob at B (BUSY).
- M4 is being used for QSO by Mr. A.
M6 is being used for QSO by Mr. B.
- Each memory is set at as follows: M2 lamp of memory address indicator is lit.
M1=8.500, M2=8.220, M3=8.330, M4=8.440, M5=8.550, M6=8.660



● How to use AUTO SCAN key

Example 1: Set the SCAN mode at B (BUSY). Scanning will begin when the AUTO SCAN key is pushed, and automatically stops at a channel being used for a QSO.

Note: The squelch knob must be rotated clockwise to be set in the squelching state.



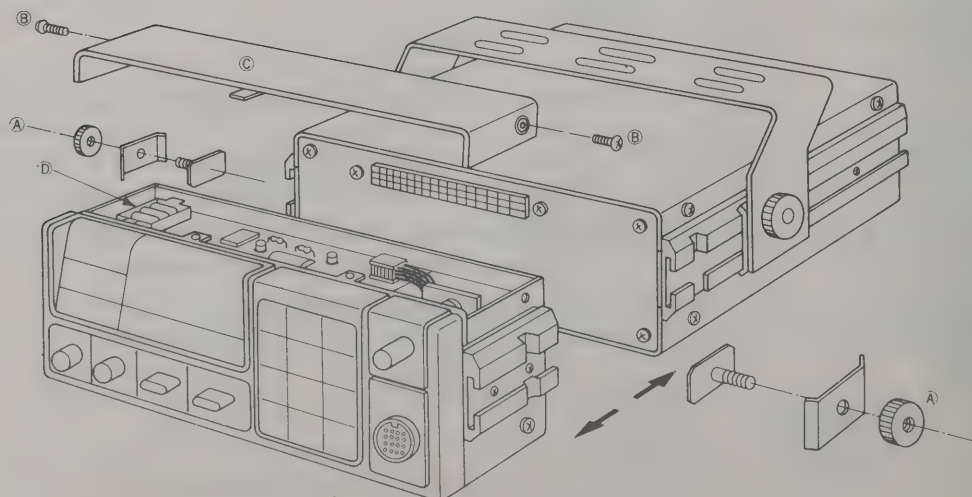
Example 2: To search for a vacant channel from among busy channels, set SCAN key at V (VACANT). Press the AUTO SCAN key, and scanning will automatically stop at the first vacant channel encountered. The squelch must be set to the squelching state.

★ HOW TO LOAD AND REPLACE SILVER OXIDE CELLS

The silver oxide cells used for retaining the memory of the built-in microcomputer should be replaced about every six months. To replace them, separate the main unit from the control unit as illustrated below and then remove the clamping nut (A) on both sides. Remove the set screw (B) of the control unit cover with a Phillips head screwdriver and take off the cover (C). Three cells (D) are contained inside the left end of the control unit.

Replace them with new ones (S76, MS76, RS76 or 76SO) paying attention to the polarity of the cells, and reassemble the unit. Since the cells are held in place by the soft plastic sheet inside the cover (C), do not remove this plastic sheet. If it is difficult to take out the cells, pull up the green tape.

Separate main unit from control unit and unscrew control unit.
Remove cover and replace cells.



★ HOW TO MAKE YOUR OWN CONTROL BOX

The connector of control microphone for this unit is supplied with a portion of the input-output matrix circuit of the microcomputer. The circuit diagram for the available signals is shown below. You can make a variety of your own control boxes using these signals in combination with optional control microphone connector plug (with cord).

Lead wires corresponding to signals:

- | | |
|----------------|---------------------|
| 1. Green (K2) | 7. Black (R1) |
| 2. Red GROUND | 8. White |
| 3. Blue VOL | |
| 4. Yellow (K1) | 9. Brown PTT |
| 5. Purple | 10. Orange (R0) |
| | 11. Knit MIC GROUND |
| 6. Grey SQ | 12. Pink MIC OUTPUT |

By combining 1, 4 and 5, and 7, 8 and 9 among these 12 lead wires, the microcomputer of the control unit can be controlled.

Signal 100K UP by contacting R0 to K1

Signal 100K DOWN by contacting R0 to K2

Signal M1 CALL by contacting R0 to K8

Signal 10K UP by contacting R1 to K1

Signal 10K DOWN by contacting R1 to K2

Signal MEMO CALL by contacting R1 to K8

Signal MHz UP by contacting R2 to K1

Signal AUTO SCAN by contacting R2 to K2

PTT, VOL and SQ can be added to the above.

By utilizing this wide range variations you can make a highly original control box such as hand control box.

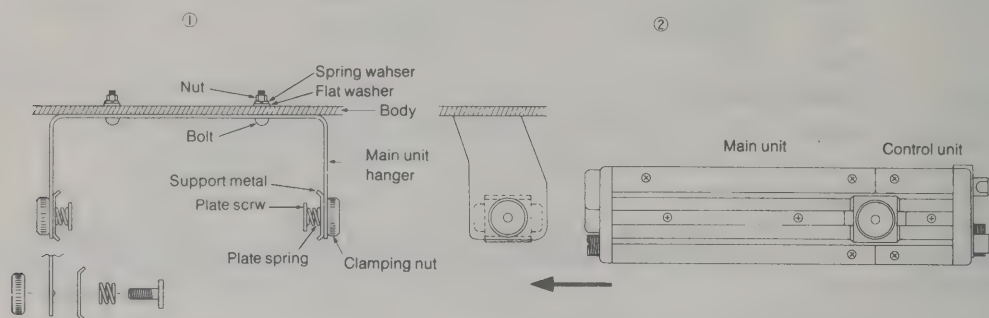
The most important consideration to be taken when making an original control box is a countermeasure for induced hum.

If sufficient care is taken there will be no problem in making your own control box.

★ HOW TO MOUNT HANGER BRACKET OF MAIN UNIT AND CONTROL UNIT

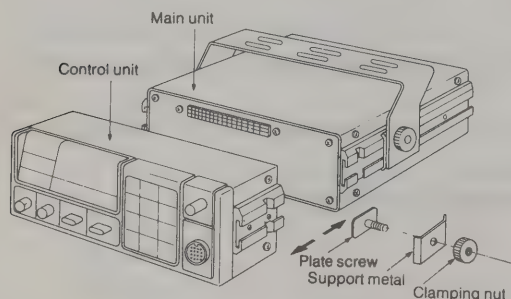
How to mount main unit

Fit plate screw, plate spring and support metal to hanger vertically or horizontally, and tighten them temporarily with a clamping nut. Push the main unit in direction of the arrow and fix it at a proper position. Then, firmly tighten the clamping nut.



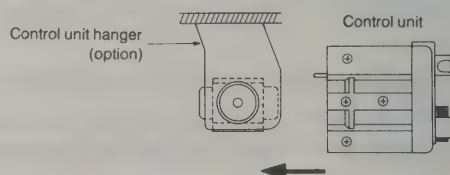
How to remove the control unit

Loosen the clamping nut, remove the plate screw, plate spring and support metal connecting the main unit with the control unit. Then, separate the two units.



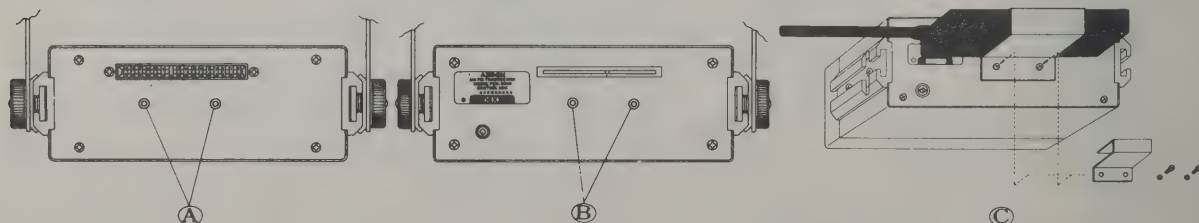
How to mount the control unit

Mount the control unit on the hanger bracket in the same way as with the main unit.



How to install cable connector

The optional parts ECK-90 kit contains a remote cable, hanger, connector holder and screws. Fix the connector holder to two screw holes (A) on the front of the main unit and to two screw holes (B) on the rear of the control unit using a screw M3 x 5 (standard accessory) and a spring washer for M3 illustrated in (C).



OPTIONAL PARTS

★Control microphone connector plug (with cord) EC-80

This unit is supplied with a multifunctional microphone as a standard accessory.

However, when you wish to make a control box of your own design or to use an available microphone with this unit, buy an optional microphone connector plug (with cord) and make connection by referring to page 19, in order to achieve the intended purpose. In this case, care should be taken to avoid induced noises. If the above steps are taken, anybody can make his own control box. For further details, see Page 18.

Green	10KHz DOWN
Red	GROUND
Blue	VOL
Yellow	10KHz UP
Purple	M1 CALL
Grey	SQ
Black	Common lead for UP, DOWN
White	Empty
Brown	PTT
Orange	Common lead for M1 CALL
Knit	Shield (MIC GROUND)
Pink	MIC

Remote cable kit ECK-90

(Used for separating control unit from main unit.)

By using this remote cable kit, the control unit can be located by itself in the desired place. For instance, when it is inconvenient to stretch your arm to the lower part of the dashboard, you can place the control unit in a visible location and the main unit under the sider's seat. When using this transceiver as a fixed station, you can perform QSO in bed while setting the main unit on a desk. Cable length: 5m

★External speaker kit AS-6

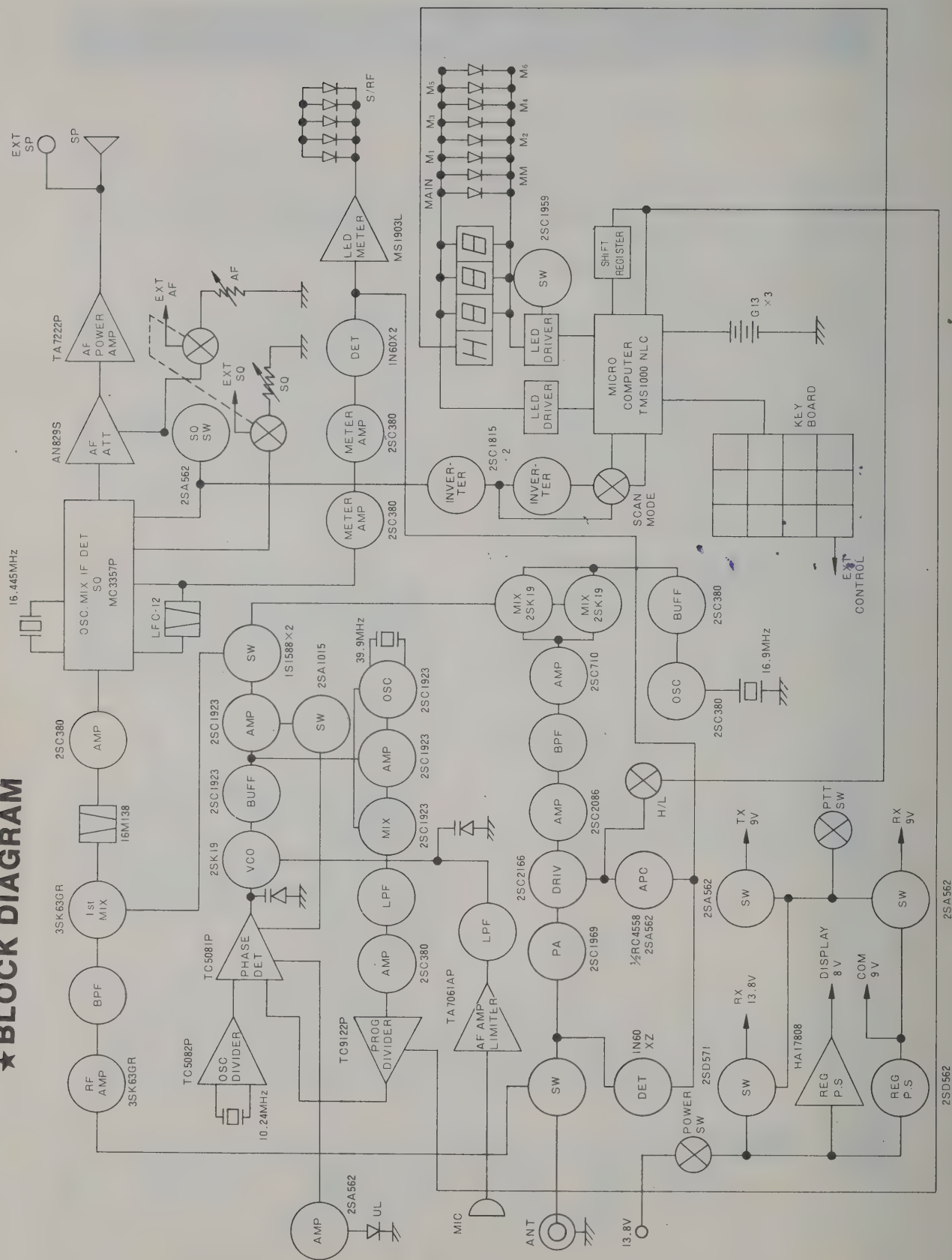
This accessory is ideal when you wish to get more powerful output than that of the built-in speaker, or to change the location of the speaker alone.

The speaker is provided with a 2m cord with 3.5 ϕ plug.

★Base station microphone DX-2000 (Dynamic type, built-in amplifier)

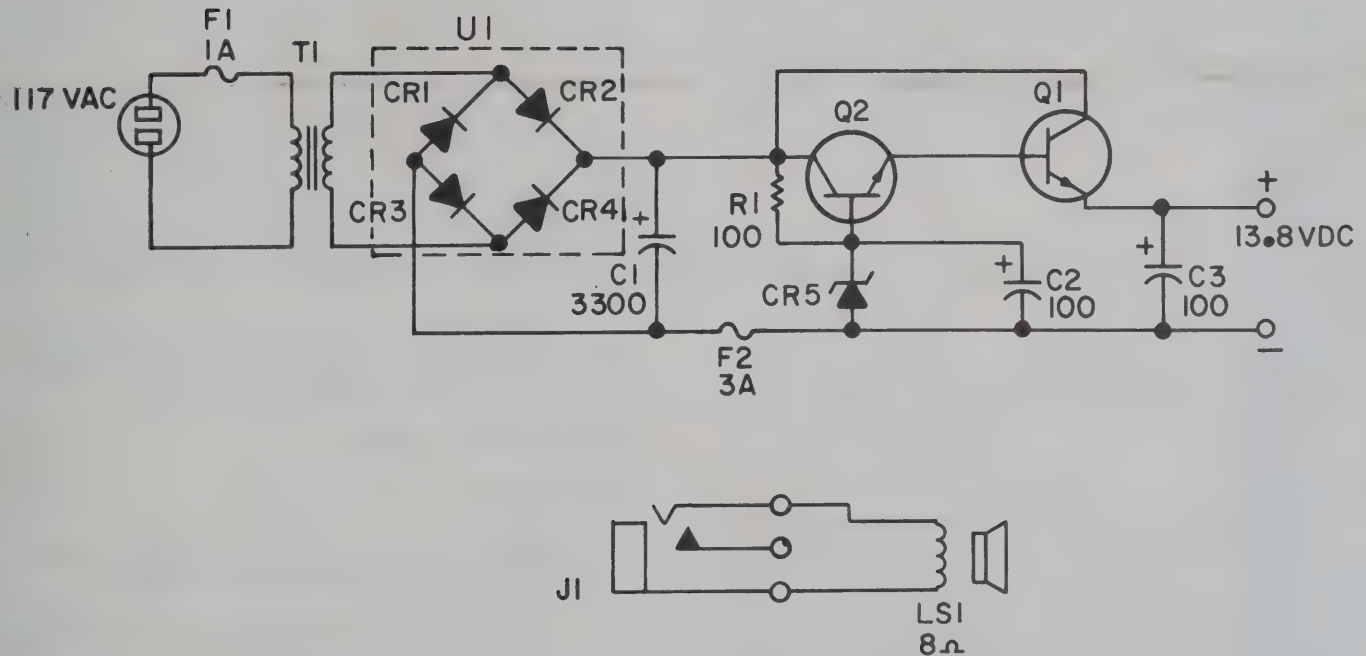
This is our highest quality microphone for use with fixed stations. It features UP-DOWN function, memory 1 call, PTT lever, locking mechanism, etc.

★ BLOCK DIAGRAM



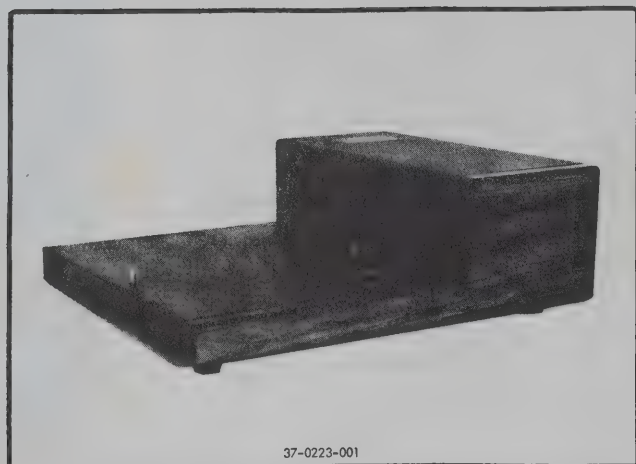
PARTS LIST

C1	3300μF, 35V electrolytic	022-2810-301		Front bezel	022-2832-201
C2	100μF, 16V electrolytic	510-4116-101		Main chassis	022-2817-201
C3	Same as C2			Cabinet	022-2817-202
				Front panel	022-2832-202
CR5	Zener, BZ140	022-2823-301		Speaker mounting plate	022-2817-203
				Q1 cover plate	022-2817-204
F1	Fuse 1A, 250V FB AGC	534-0003-020		Q1 heat sink	022-2813-201
F2	Fuse 3A, 250V FB AGC	534-0003-026		CR1 heat sink	022-2813-202
				Fuseholder	534-1002-001
J1	Speaker jack	515-2001-011			
			U1	Bridge rectifier, KBL-02	022-2823-302
LS1	Speaker, 8 ohm	022-2889-301			
			W1	Speaker cable	022-2823-201
Q1	2SD180 NPN	022-2876-301	W2	AC cord with plug	597-1001-001
Q2	2SD355 NPN	022-2876-302		Strain relief	574-0003-001
				Red terminal	111-0102-001
R1	100 ohm, 1 W, metal oxide	022-2869-301		Black terminal	111-0103-001
				Rear rubber leg	022-2874-301
T1	Power transformer	022-2892-301		Front rubber leg	022-2874-302



SCHEMATIC DIAGRAM

VIKING 352 POWER SUPPLY SERVICE SHEET



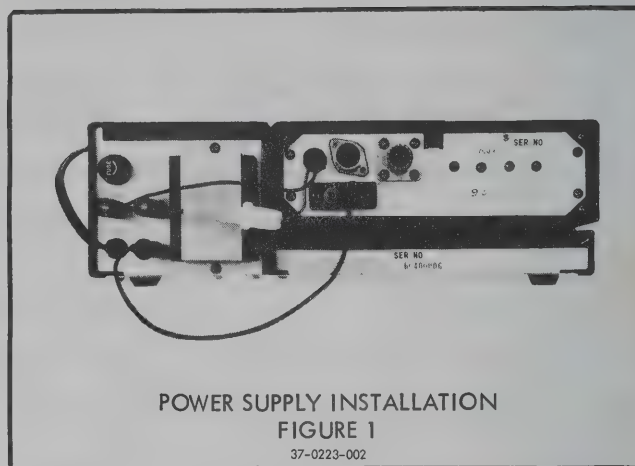
GENERAL

The Viking 352 AC Power Supply, Part No. 239-0144-001, converts the Viking 352 mobile transceiver to base station operation. The power supply provides 13.8 VDC $\pm 10\%$ at 2 amperes from 105 to 128 VAC, 50-60 Hz source. Also included in the power supply cabinet is a built-in speaker. The transceiver is easily attached to the power supply with the provided hardware.

INSTALLATION

Proceed as follows for power supply installation and connection:

1. Place the four sticky back rubber spacers on the power supply mounting tray to support the transceiver.
2. Place the transceiver on the power supply as shown in Figure 1 and tighten the two mounting screws.
3. Connect the black DC lead from the transceiver to the black terminal on the power supply and connect the red lead to the red terminal.
4. To use the speaker in the power supply, connect the supplied cable from the external speaker jack on the transceiver to the speaker jack on the power supply.
5. Connect the line cord to a 117 VAC, 50-60 Hz source.



CIRCUIT DESCRIPTION

The power supply uses two transistors connected as a Darlington pair acting as a series pass device to regulate the output voltage to within $\pm 10\%$ of 13.8 VDC as the load varies from 0 to 2 amperes.

Since the base-emitter voltage of Q2 consists of the difference between the load voltage and the zener reference voltage, any change in the load changes the base-emitter bias voltage and transistor conduction. As the load current increases the load voltage decreases; this causes the base-emitter voltage to increase which causes Q2 and Q1 conduction to increase, thus regulating the output voltage.

Conversely, when the load current decreases, the load voltage increases causing the base-emitter voltage to decrease and transistor conduction decreases.

SPECIFICATIONS

Voltage Input	117 VAC $\pm 10\%$
Voltage Output	13.8 VDC $\pm 10\%$ as output current changes from 0-2 amperes
	13.8 VDC $\pm 5\%$ as the AC line voltage varies 117 VAC $\pm 10\%$
Ripple	75 mV P-P maximum at 2 amperes output current
Circuit Protection	1 ampere, 250V fast blow AGC 3 ampere, 250V fast blow AGC
Speaker	8 ohm, 2 watts
Unit Weight	3.65 kg (8 lbs)

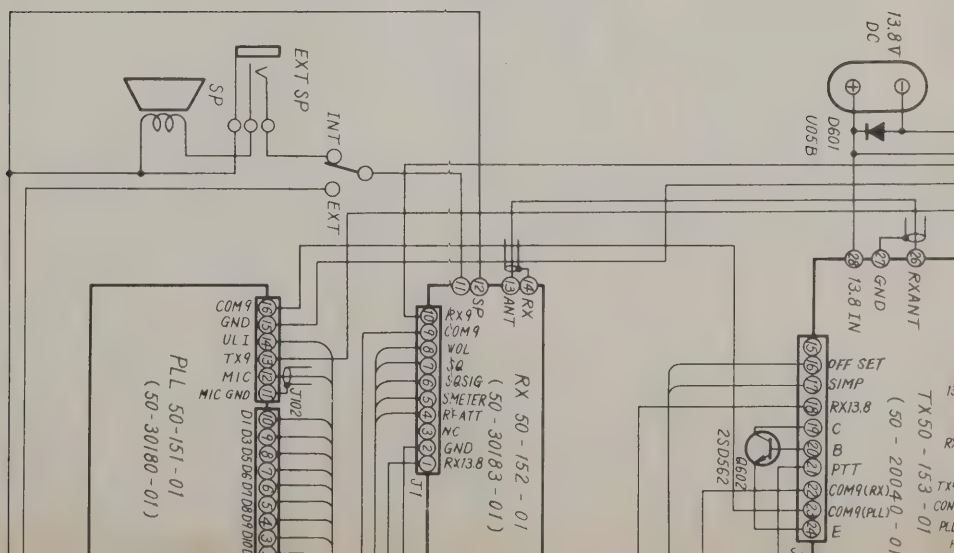
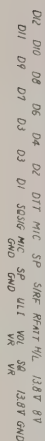
List Price: \$69.95



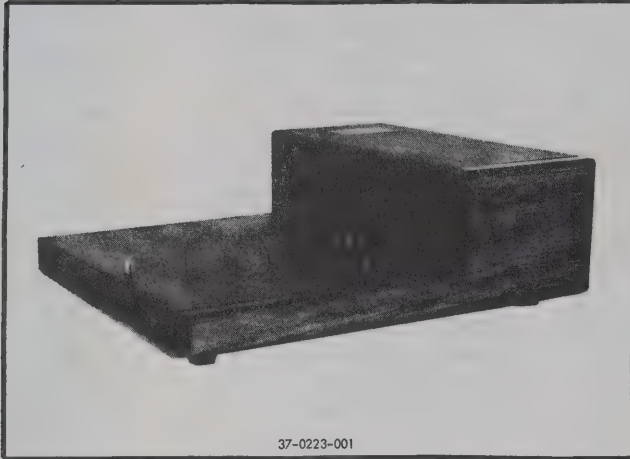
E. F. JOHNSON COMPANY
WASECA, MINNESOTA 56093

5-76EFJ 004-0144-001

Printed in U.S.A.



VIKING 352 POWER SUPPLY SERVICE SHEET



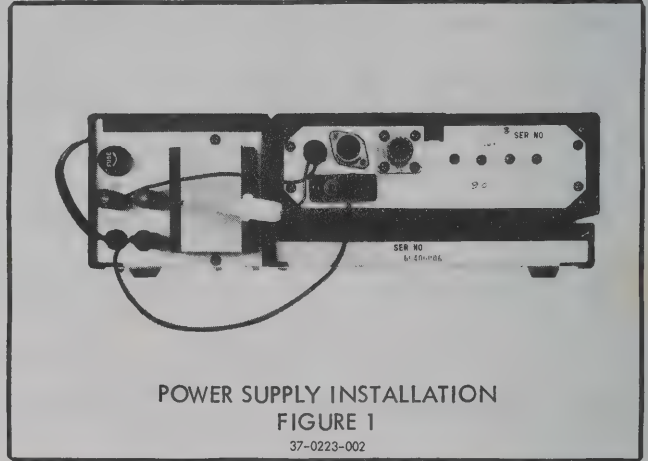
GENERAL

The Viking 352 AC Power Supply, Part No. 239-0144-001, converts the Viking 352 mobile transceiver to base station operation. The power supply provides 13.8 VDC $\pm 10\%$ at 2 amperes from 105 to 128 VAC, 50-60 Hz source. Also included in the power supply cabinet is a built-in speaker. The transceiver is easily attached to the power supply with the provided hardware.

INSTALLATION

Proceed as follows for power supply installation and connection:

1. Place the four sticky back rubber spacers on the power supply mounting tray to support the transceiver.
2. Place the transceiver on the power supply as shown in Figure 1 and tighten the two mounting screws.
3. Connect the black DC lead from the transceiver to the black terminal on the power supply and connect the red lead to the red terminal.
4. To use the speaker in the power supply, connect the supplied cable from the external speaker jack on the transceiver to the speaker jack on the power supply.
5. Connect the line cord to a 117 VAC, 50-60 Hz source.



CIRCUIT DESCRIPTION

The power supply uses two transistors connected as a Darlington pair acting as a series pass device to regulate the output voltage to within $\pm 10\%$ of 13.8 VDC as the load varies from 0 to 2 amperes.

Since the base-emitter voltage of Q2 consists of the difference between the load voltage and the zener reference voltage, any change in the load changes the base-emitter bias voltage and transistor conduction. As the load current increases the load voltage decreases; this causes the base-emitter voltage to increase which causes Q2 and Q1 conduction to increase, thus regulating the output voltage.

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Circuit Protection	1 ampere, 250V fast blow AGC 3 ampere, 250V fast blow AGC
Speaker	8 ohm, 2 watts
Unit Weight	3.65 kg (8 lbs)

List Price: \$69.95

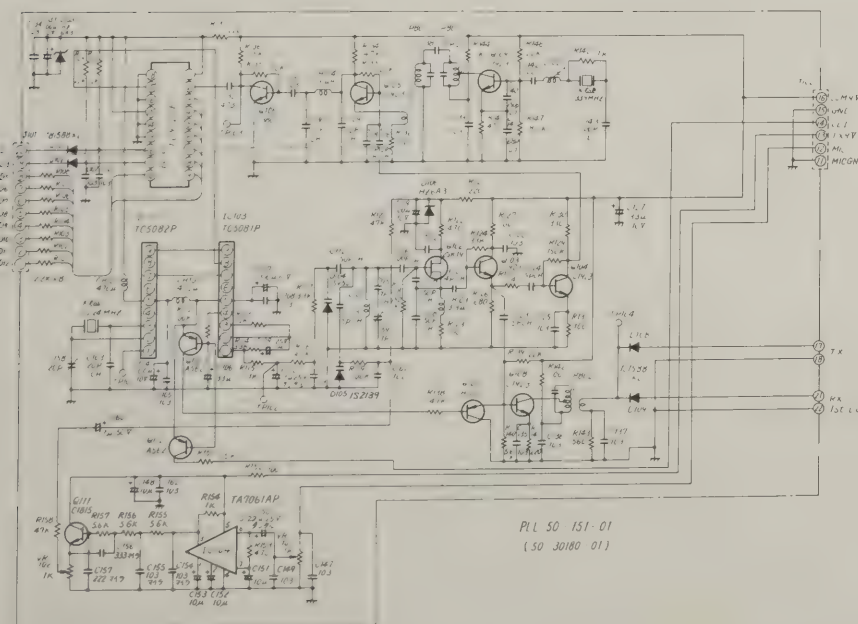
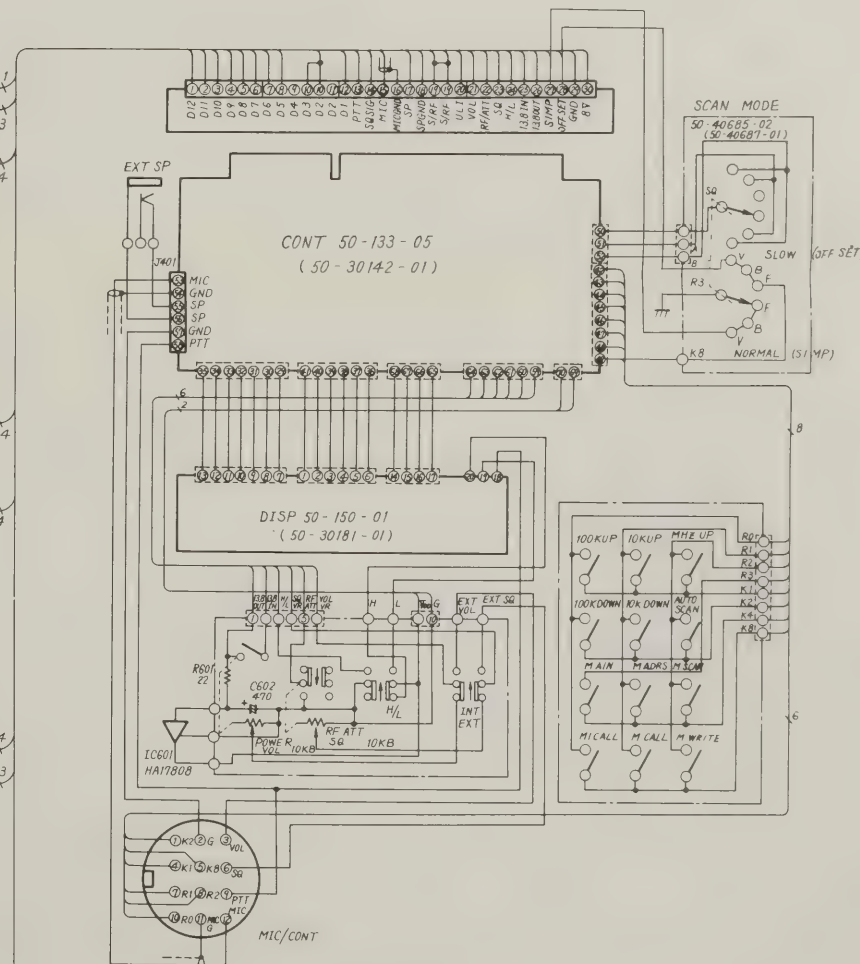
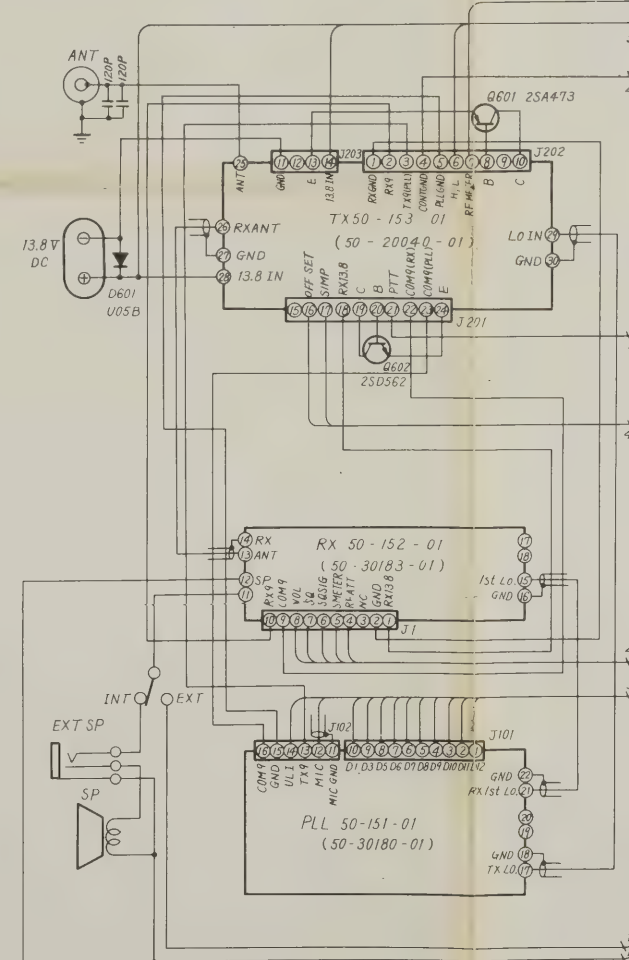
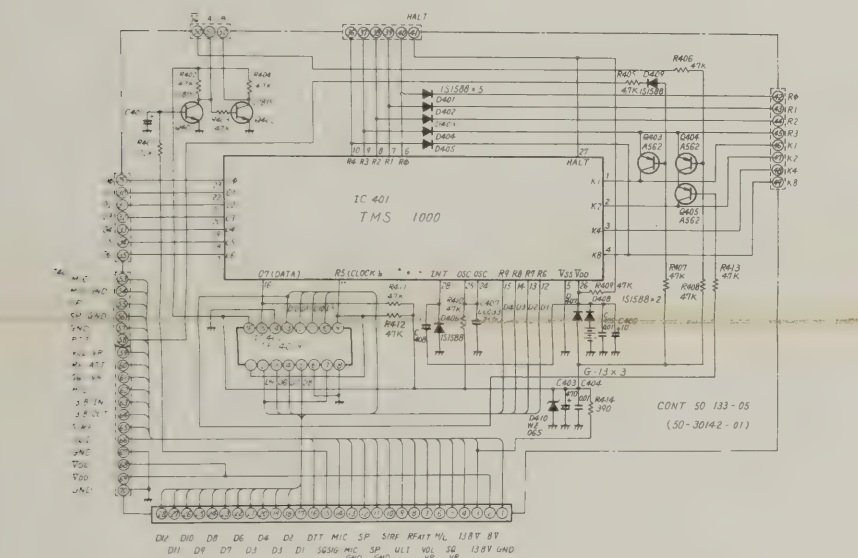
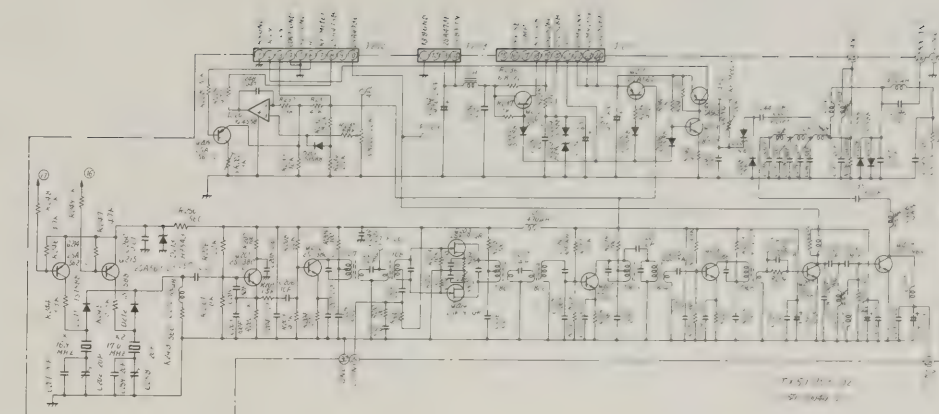
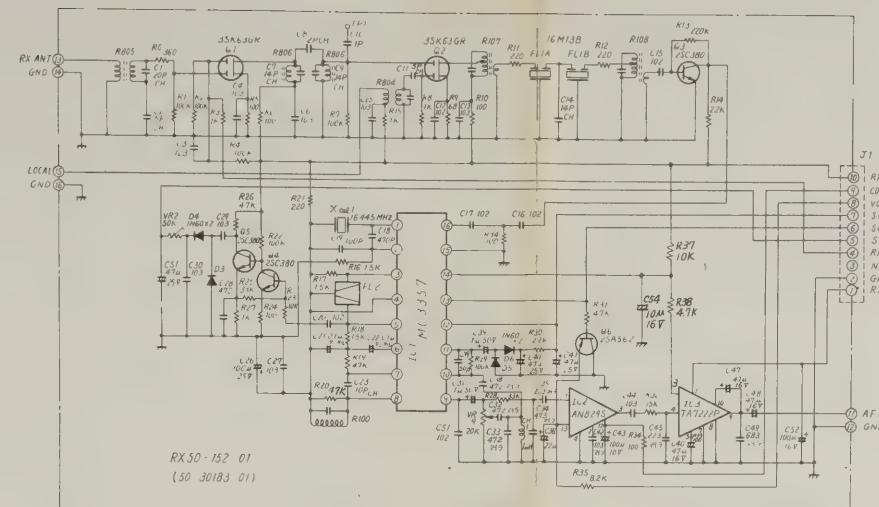
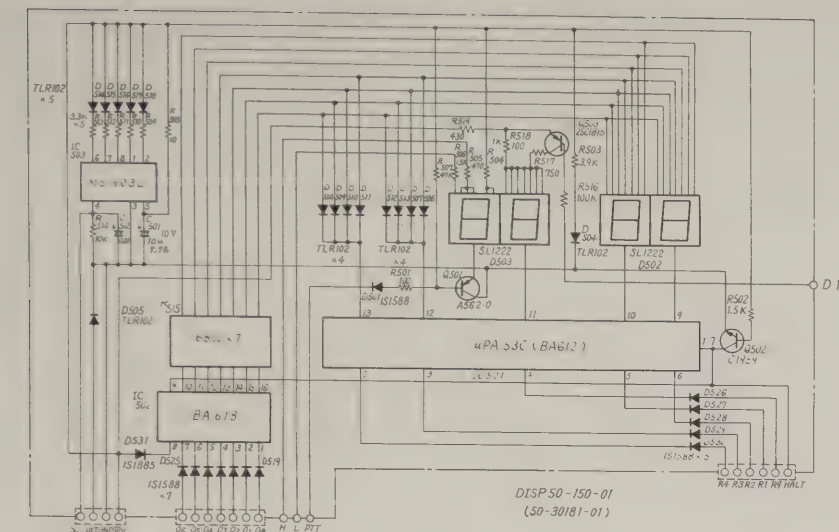


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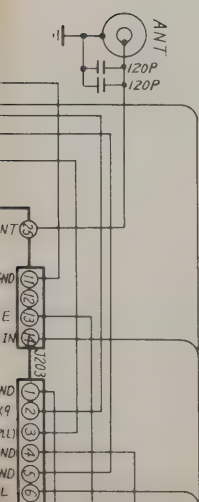
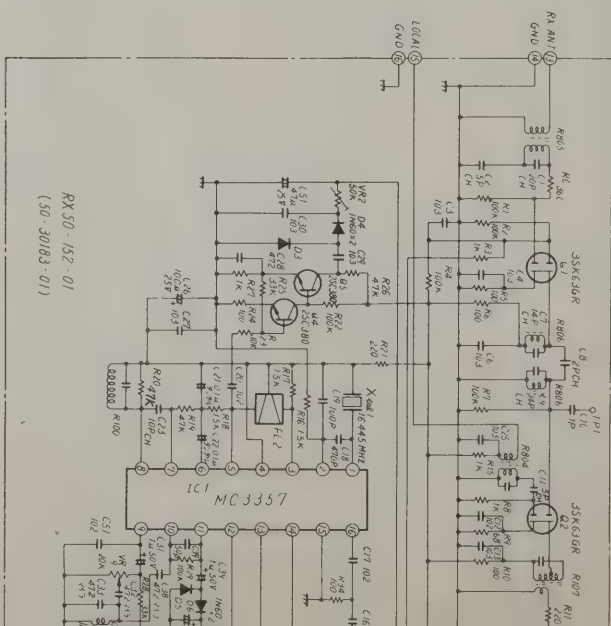
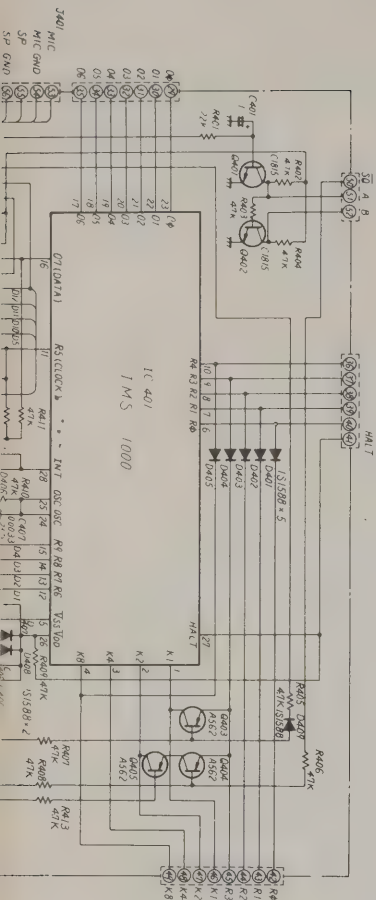
UNIT Ω
 μF

Some components subject to change for an improvement without notice.

01

PROCESSING MOBIL TRANSCEIVER

PCS-2800 SCHEMATIC DIAGRAM

[illegible]

Amateur-Wholesale Electronics

8817 S.W. 129th Terrace

MIAMI, FLA. 33176

(305) 233-3631

CUSTOMER'S ORDER NO.

PHONE

DATE

4-26-80

NAME

ADDRESS

X of Keire
1575 E. ELM ST
Lima, Ohio 45804

SOLD BY

CASH

C.O.D.

CHARGE

ON ACCT.

MDSE. RET'D.

PAID OUT

QTY.

DESCRIPTION

PRICE

AMOUNT

1

PCS 2800

299.00

SN 20062

TAX

13.45

RECEIVED BY

TOTAL

312.45

6803

All claims and returned goods
MUST be accompanied by this bill.

SERIES 610

Thank You

Amateur-Wholesale Electronics

8817 S.W. 129th Terrace

MIAMI, FLA. 33176

(305) 233-3631

CUSTOMER'S ORDER NO.		PHONE			DATE	
					4-26-80	
NAME K & Keir						
ADDRESS 1575 E. ELM ST Lima, Ohio 45804						
SOLD BY	CASH	C.O.D.	CHARGE	ON ACCT.	MDSE. RET'D.	PAID OUT
	☒					
QTY.	DESCRIPTION				PRICE	AMOUNT
1	PCS 2800					299.00
	SN 20062					
					TAX	13.45
RECEIVED BY					TOTAL	312.45

6803

All claims and returned goods
MUST be accompanied by this bill.

SERIES 610

Thank You

Thank You! WE APPRECIATE
YOUR BUSINESS

Promissory Notes should be made in duplicate with one copy for customer. To make a copy simply insert a carbon between the sheets - or fill out each copy separately.

PROMISSORY NOTE

\$ _____ Date _____ 19 _____

For Value Received, I, _____

Promise to pay to the order of _____

the sum of _____

to be paid as follows: _____

with interest to be paid, at the rate of _____

per centum per annum, from date payment is due _____

(FOR SIGNATURE OF CUSTOMER)

L.S.

(ADDITIONAL SIGNATURE IF AVAILABLE)

L.S.

SIGNED AND SEALED IN PRESENCE OF:

(WITNESS)

★ SPECIFICATIONS

(General specifications)

●Semiconductors	IC 14 pcs. (including MICON 1)
	FET 5 pcs.
	Tr 36 pcs.
	Di 66 pcs.
●Frequency band	28.00 to 29.70 MHz
●Operating ambient temperature range	-10° to +50°C
●Power supply voltage	13.8V±15%
●Grounding polarity	Minus
●Current consumption	0.7A max. in case of reception 2.5A max. in case of transmission

(Transmitter)

●Transmitting output	10W (HIGH) 1W (LOW)
●Modulation method	Variable reactance frequency modulation
●Maximum frequency deviation	±5 KHz
●Spurious	-60 dB or less
●Antenna impedance	50Ω
●Type of emission	F3
●Microphone used	500Ω dynamic type

(Receiver)

●Receiving system	Double superheterodyne system
●Intermediate frequency	First 16.90 MHz Second 455 KHz
●Receiving sensitivity	20 dB Noise suppression sensitivity 0.28μV or less
●Selectivity	±6 KHz or more/ -6 dB ±15 KHz or less/ -60 dB
●Low frequency output	2W or more (in case of 8Ω load and 10% distortion)

(Dimensions & Weight)

●Dimensions	62(H) x 158(W) x 246(D) mm (except projections)
●Weight	Approx. 2.5 kg
★ Notice....Specifications are subject to change without notice for further technical improvement.	

★ LIST OF ACCESSORIES

(1) Microphone PCM-2000	1
(2) Microphone hanger	1
Set screw	2
Flat washer for above	2
(3) DC power cord (with fuse) 1.5m	1
(4) Spare fuse (5A)	2
(5) Hanger and fixtures	1 set
Hanger	1
Clamping nut	4
Plate screw	4
Spring for above	2
Support metal	4 { 2 (with hole) 2 (without hole)
Set screw	4
Nut for above	4
Flat washer for above	4
Spring washer for above	4
●Instruction Manual (including circuit diagram)	
○Silver oxide cell (S76, MS76, RS76, or 76SO)	3
G13	



JAPAN PIEZO CO., LTD.

TOKYO JAPAN

PRINTED IN JAPAN